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MIDNIGHT VIGIL WHILE BETHLEHEM SLEEPS

Even to-day St. Luke's account of the First Christmas repeats itself: "And there were in the same country shepherds abiding in the field, keeping watch over their flocks by night." In the background rises the dim outline of the town of the Nativity (See Bulletin No. 2).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Salvador, Little Giant of Central America

SALVADOR, which recently experienced a change of government, is the smallest country, independent or dependent, on the mainland of either North or South America, but it is more densely populated than any other country on either continent, and, measured by trade balances, it is the most prosperous Central American Republic.

The United States is the source of more than half of the Salvador imports and nearly all the remainder comes from Europe. Salvador is the only Central American Republic without a port on the Atlantic seaboard, but it is linked with the busy harbor of Puerto Barrios, Guatemala, on the Gulf of Honduras, by a new railroad, and with other parts of Guatemala by automobile highways.

American Autos Use Peru Gasoline

Although Estados Unidos (United States) appears in nearly every class of Salvador imports, drug stores in Salvador cities display Italian sulphur, German soap and French perfumes and cosmetics. In hardware stores travelers see German steel, iron and nickel products. In the men's shops Italian-made hats are for sale while, in a near-by wine shop, there are French, Spanish and German wines.

One may sit in a Salvador living room reading a newspaper printed on German paper by light which comes through a window pane from Belgium. In the next room the dinner table may be set with such products as tea and rice from China, cocoa from Costa Rica, and cheese from Nicaragua; all of which may have come from a kitchen equipped with German aluminum cooking utensils.

Outside the front door automobiles from Detroit are run by Peruvian gasoline. Hail one of these automobiles and you may ride past monuments cut from Italian marble and new building construction in which Belgian structural steel forms a network above the roofs of older structures. At the ports ready for export are huge mounds of jute sacks from India bulging with Salvador sugar and coffee. Perhaps some of the coffee came from mills with British equipment, while some of the sugar emerged from refining machinery that was "Made in Germany."

"Peruvian Balsam" a Misnomer

Coffee forms about 92 per cent of Salvador's exports. Coffee and Brazil are nearly synonymous terms in the United States; but what housewife in this country knows but that the brew from Salvador coffee has not percolated in her coffee pots, for many tons are shipped to this country annually.

Salvador balsam has figured in Salvador exports since the Spaniards first settled there. Balsam, which is used for its medicinal properties, is the sap of a tree that is native to Salvador. But the early Spanish settlers shipped the sap to Peru, where it was reshipped to Spain. Hence the misnomer "Balsam of Peru" which is, in reality, as Salvador insists, "El Salvador Balsam." Three-fourths of Salvador's balsam is shipped to the United States. Germany and Great Britain take nearly all the remainder.

Note: See also: "Volcano-Girded Salvador," *National Geographic Magazine*, February, 1922; "Shattered Capitals of Central America," September, 1919; "The Countries of the Caribbean," February, 1913; "Buenos Aires to Washington by Horse," February, 1929; "To Bogotá and Back by Air," May, 1928; and "How Latin America Looks from the Air," October, 1927.

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GLAD TIDINGS RING OUT FROM HALLOWED TOWERS IN BETHLEHEM

A grilled opening in the chapel belfry of the boys' school, "The Father of the Orphan," makes a fitting frame for a view of the home of Christmas, with the two towers of the Church of the Nativity in the distance (See Bulletin No. 2).

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Bethlehem, the Home of Christmas

AGAIN Christmas recalls the Palestine settlement of Bethlehem, birthplace of Jesus, and the most famous small town in the world. Motor cars now vie with the camel, the ox and the ass in its narrow streets, and an occasional airplane drones overhead, but in many respects Bethlehem has remained unchanged since the days of Abraham.

"We all know of Bethlehem as a small town in Judea and sing about it in our carols," writes John D. Whiting in a communication to the Washington, D. C., headquarters of the National Geographic Society, "but probably few realize how much it still contains that helps us to visualize the First Christmas.

A Town on a Hilltop

"To those who know it well—its narrow, winding streets and lanes, cobblestone paved; its age-old homes, with walls of rough-cut stones grown mellow with years of sunshine; its vineyards, olive yards, and terraced gardens; and, most of all, its people and their biblical customs—it still speaks vividly of the Nativity story," Mr. Whiting continues.

"The town, crowning a hill and dominating open valleys to the east and south, lies just far enough away from the busy road that links Jerusalem and Hebron to be undisturbed by congested traffic. With the exception of a handful of Moslem neighbors, its 6,000 hospitable inhabitants are all Christians and live together in amity.

"As we pass through the confined thoroughfares, now under a vaulted archway, now up by a steep flight of street steps, we may hear the hum and screech of tools carving pearl shell into ornaments or cutting thick sections of the same material into beads. The result may be a brooch, pendant, or necklace to bring joy to a lady upon the return of the pilgrim purchaser to some distant land. It may be an intricately carved and inlaid crucifix to hang, perhaps, on the wall of some small, lonely chapel; or it may be a snowwhite rosary mounted with pure silver, destined to find its way into a convent.

"The shop consists of a room or two in the home or adjoining it. Sometimes only the members of a family work together; at other times a few outsiders are employed.

"Sitting cross-legged on the floor and working with the simplest tools and contraptions, the artisans turn out beautiful things; and, while the squeak of a saw or the rasping noise of many files cutting away at the hard shell is not a pleasant note, still, unless they have stopped to return in flowery Arabic the salutations of passers-by, the workers probably will be found passing otherwise irksome time singing in unison tunes centuries old.

Christmas with the Shepherds

"The Church of the Nativity, in the eastern part of town, is one of the oldest existing churches in Christendom, if not the oldest, one of the few used in common by the three sects of Christianity. The best authorities say it stands on or close to the site where Jesus was born and the place of the First Christmas.

"The present entrance to the Nativity Church is so small that in passing through it one must bend very low. The original entrance must have been an imposing one, for over the present miniature door is a large portal that repeatedly through the ages has been made smaller.

"To know Christmas in Bethlehem, one should pass it not in the old churches, historically interesting though they be, but under the star-studded dome of the great outdoors, with the shepherds watching over the flocks in the field by night.

"When the village pastures have been eaten bare, the shepherds withdraw into the Wilderness. With no caves or cotes for nightly protection, they club together, and keep vigilant watch. I have spent many nights with these simple people, out in the open desert.

"After the evening meal, the chief sets the watches, for it is already dark in this land of short twilights. Taking for a guide a bright star, he measures with outstretched arm its course through the sky. Each span is to be one watch, in which two will keep guard together.

"Now the first guards, with rod and staff, move about the outside edge of the flock. From time to time the yelp of a wild jackal or the laugh of a striped hyena causes the sheep to stir as if to stampede; but reassuring calls from the watchers quickly restore quiet.

"The shepherds not on guard lie down to rest, spacing their places of repose in a rough circle around the fold.

"The first three or four watches bring the midnight to deepen the star-studded indigo. Silhouetted against the sky is the faint rim of the mountains that shut out the world and

© *Photograph from Harriet Chalmers Adams*

MARIMBA PLAYERS, INDIAN JAZZ MUSICIANS OF SALVADOR

The marimba, a musical instrument which somewhat resembles the xylophone, is played by four or eight men, who strike the keys with rubber-tipped hardwood sticks. The music is not unlike that of the harp, being deeper than that of the marimbas we know.

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Second Solo Flight across the Atlantic Ends in British Gambia

THE first solo flight across the Atlantic Ocean carried Lindbergh from New York to Paris. In the second such hop Bert Hinkler, Australian aviator, recently spanned the South Atlantic, from Natal, Brazil, to Bathurst, British Gambia. Hinkler's flight was also the first west-to-east crossing of the South Atlantic, and the first transatlantic crossing in a light airplane.

British Gambia, thus hurled into the cables of the world, is less noticeable on most maps than many oceanic islands of lesser area. Even when the searcher is given the clew that Gambia is in Africa, he will find it none too easy to locate.

"In the Jaws of French Territory"

As you run your finger down the west coast of Africa, you must look sharply or the narrow little colony and protectorate will escape you. Gambia has been humorously referred to in political debates as "thin lips of land in jaws of French territory."

As a matter of fact, the territory may be looked upon as mostly river with the banks incidentally added. And it was the economic importance of the Gambia River that brought the region under British control. The Gambia is the only river of the African west coast up which ocean-going ships may steam for considerable distances at all seasons.

The protectorate consists of only a 6-mile wide strip of territory on each side of the river, but this narrow slice of land extends approximately 200 miles up stream from the coast. North and south and far to the east of the inland end of the British zone lies French territory.

Normally, if geographic and economic forces had unrestricted play, the deep, navigable Gambia would be the outlet for products of a large area. But the French favor their own ports, and the Gambia trade must depend for the most part on produce originating in the protectorate itself. French economic influence penetrates the protectorate. The five-franc piece circulates with British coins, and French ships have an important part in the carrying trade from the river.

Exchange Suggested with France

Because of Gambia's narrowness and the logical way in which it seems to fit into the French scheme of things in Western Africa, it has been suggested on several occasions that Great Britain exchange the territory for a French patch of land elsewhere. This suggestion, however, has always met the disinclination of the British to abandon any part of the empire. One reason for Britain's clinging to the river is that it is an extremely important haven from which to protect British shipping lines between the mother country and South Africa.

The Portuguese first explored the Gambia River, but they made no settlements. Later, in the seventeenth and eighteenth centuries, the British and the French were rival traders on the Gambia as they were on the Senegal, a short distance to the north.

In 1783 the Treaty of Versailles recognized Britain's interest on the Gambia and that of France on the Senegal.

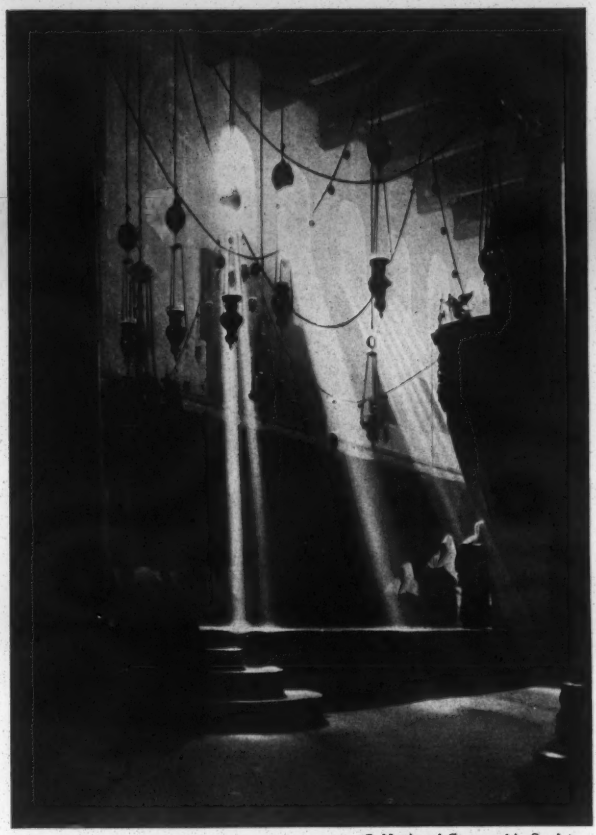
The Gambia trade has always been a fairly flourishing one. Prosperity has rested successively on slaves, ivory, and peanuts. Slaving, of course, tended to reduce the population and left the land open for swarms of animals. Ships, in the

more than 1,900 years of time. It is as if the world were transplanted into the past. St. Luke's account of the First Christmas repeats itself: 'And there were in the same country shepherds, abiding in the field, keeping watch over their flocks by night.'

"When the pink of dawn heralds the birth of a new day, the shepherds are astir, talking one to the other. As they start up the inclines, it seems almost that they are saying, 'Let us now go even unto Bethlehem and see this thing which has come to pass.'"

Note: Students interested in the Holy Land should consult also: "Bethlehem and the Christmas Story," *National Geographic Magazine*, December, 1929; "The Pageant of Jerusalem," and "East of Suez to the Mount of the Decalogue," December, 1927; "Among the Bethlehem Shepherds," and "Skirting the Shores of Sunrise," December, 1926; "The Citroën-Haardt Trans-Asiatic Expedition Reaches Kashmir," October, 1931; and "Crusader Castles of the Near East," March, 1931.

Bulletin No. 2, December 21, 1931.



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GOLDEN SUNLIGHT GLORIFIES AN ANCIENT CHURCH

Women are praying on the raised platform over the Grotto of the Nativity, Bethlehem. Silver lamps hang from the ceiling. The globular objects below which swing the bowls of burning olive oil are ostrich eggs, either natural or metal-mounted, decorated with crosses and cupids in colors. These ornaments prevent mice from running down the chains and getting into the oil, and also remind worshipers to attend the sermon as vigilantly as the ostrich is believed to watch its nest.

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Snow, Master Craftsman of the Winter Landscape

A "WHITE CHRISTMAS," traditional holiday of song and story, would not be possible without that master craftsman, snow. During most of the winter those who drive motor cars, or those who must make their living outdoors, do not look with much favor or enthusiasm upon "the beautiful snow," but on this one day of days snow must be welcomed by everyone.

While it is customary to associate snow only with winter, science tells us that, strange as it may seem, snow formations occur within almost all turbulent storm clouds, during every season and in all climates. In the Torrid Zone, and in summer in the Temperate Zones, its formation is, of course, confined to the frigid upper part of the storm-clouds. It melts and is converted into rain when it falls below a certain altitude, except upon high mountains. This fact accounts for snow the year round on the peaks of the "Mountains of the Moon," in Africa, and on the Andes, in Ecuador, both of which cross the Equator.

Infinite Variety of Form

Not all the beauty of snowflakes, however, is en masse, as a mantle for fields, roads, trees and houses. Under a microscope snowflakes reveal a bewildering variety of forms, solid and branching crystals of rare loveliness. Although snow crystals, both of the same and of different storms, strangely resemble one another and possess features in common, new and unique patterns are continually being wrought in Nature's cloudland laboratory.

Those who have taken up the study of snow crystals report that no two snowflakes are exactly alike. Nearly all, however, are hexagonal, or six-pointed. The natural form of ice (water) crystal is the triangle, but such forms in snow are of rare occurrence, appearing only during very cold temperatures. Jewelers, art craftsmen, art teachers, metal workers, wallpaper designers, and silk manufactuers frequently find inspiration for art designs in the varied and symmetrical forms of snowflake gems (see next page).

How Snow Is Photographed

The wondrous beauty of the tiny individual crystals of snow attracted attention in very early times, for we find references to them in many ancient writings. And in the Scriptures, in the Book of Job, we find the quotation, "Hast thou entered into the treasures of the snow?" But it is only in comparatively recent times, since the advent of dryplate photomicrography, that their beauty has been fully realized and portrayed.

Snow crystals must be photographed practically outdoors in a low temperature. One method is to catch the snowflake on a piece of soft black velvet. The camera is then placed over it, and the dark, contrasting background shows up the crystal in all its beauty. Details of the outline are made clearer by cutting away the image from the photographic film.

Note: See also "Toilers of the Sky," *National Geographic Magazine*, August, 1925; and "The Magic Beauty of Snow and Dew," January, 1923.

early days, encountered great herds of elephants swimming the river. With the end of slaving and the influx of tribes from the east the animals have been pushed from the territory and large tracts have been put into cultivation. Peanuts, or groundnuts as they are called locally, are grown in tremendous quantities.

A unique factor in groundnut cultivation is the part played by the so-called "strange farmers." At planting time every year thousands of negroes come into the protectorate from the adjoining French territory. They engage land from the native owners and for half the produce remain to grow and harvest a crop. Then they swarm back out of the country. The same individuals may not return for four or five years, but there is always a sufficient number of "strange farmers" on hand to produce the crops.

Bathurst, the capital, is the only community of any size in the protectorate. It is situated on an island in the mouth of the river and has a population of approximately 10,000. The island of St. Mary, on which the city is situated, constitutes the Colony of Gambia as distinguished from the protectorate which is made up of the strips along the river. Most of the handful of whites of Gambia live in Bathurst. The city has substantial public buildings of red sandstone.

Note: See also "By Seaplane to Six Continents," *National Geographic Magazine*, September, 1928; "Pathfinder of the East," November, 1927; and "Sinbads of Science," July, 1927.

Bulletin No. 3, December 21, 1931.

© Photograph by W. Kenneth Cuyler

THE RARE, SHORT-MANED LION OF GAMBIA

This grizzled monarch of the northwest African bush differs from the ordinary African lion of trophy hunters. The one above, shot by scientists, was the first ever brought back to America.

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Hudson Bay Ship Lane Added to Historic Trade Routes

THE passage this autumn of the first commercial cargo of wheat from Churchill, the newly opened port on Hudson Bay, to London, lays down the latest and probably the northernmost steamer lane of importance that will ever cross the Atlantic Ocean.

The long-held idea of the existence of a passage north of the continent open long enough to be used by freight ships has been proved erroneous, and the Hudson Bay country is therefore the region farthest north from which cargoes are likely to originate. The Hudson Bay steamer route is free from ice in its western third for only a short period late each summer and early each fall; but because ships using the route can reach 400 or more miles closer to the great Canadian wheat fields than by the St. Lawrence-Great Lakes route, it is believed that the newest steamer lane will be crowded with ships each season.

First Ocean Trail Blazed by Columbus

A constant northern progression of shipping lanes across the Atlantic can be noted since Columbus led the way between the Old and New Worlds. That famous trail-blazing trip first skirted the northwestern shoulder of Africa to the Canary Islands, and then led almost due west, a little north of the Tropic of Cancer, to the landfall at Watling Island. From this experimental voyage Columbus learned something of the lay of the land in the West Indies, and on his next voyage he continued southwestward from the Canaries to the larger West Indian islands.

This diagonal line which the Great Admiral traced from near the southern tip of Spain to the Antilles became the earliest of the freight and passenger lanes in the Atlantic. Along it sailed increasing fleets of caravels and galleons, transporting men and horses to the conquest of the New World, and carrying back to Spain heavy cargoes of the precious metals. Traffic over this first great highway of the Atlantic fell off after Spain lost her American possessions; but ships still ply it between Spain and Cuba, and between the Strait of Gibraltar and the Panama Canal.

South of the Spanish ship lane, the Portuguese established a route between the mother country and the eastern coast of Brazil. This is still one of the major Atlantic lanes, and over much of it pass also the ships plying between Spain and Argentina, and between eastern South America on the one hand and the British and northern European ports on the other.

Routes Converge at English Channel Mouth

Except a few less heavily-traveled shipping routes such as those between Portugal and the mouth of the Amazon, France and French Guinea, and Holland and Dutch Guiana, the trans-Atlantic traffic lanes have been traced north of the old Spanish ocean highway. One extends from the Strait of Gibraltar to New York and on to other eastern American ports.

Practically all the rest radiate from the British Isles or the mouth of the English Channel as the ribs of an opened fan radiate from its handle. They include routes to Barbados, to the Panama Canal, to Jamaica, to the Gulf of Mexico ports, and to New York and the near-by ports of the New England and the Eastern Atlantic States. Still farther north are lines to Newfoundland, the St. Lawrence, and finally the latest, the Hudson Bay route.

In all the world there is no trans-ocean shipping lane with a concentration of freight, passenger and mail traffic approaching that which moves between the English Channel and New York. There is a distinct trend of freight away from tramp steamers to liners. This is the outstanding trade route of the North Atlantic.

World's Busiest Ocean

When there is added to it the great streams of wheat from the St. Lawrence; sugar, cotton and petroleum from the West Indies and the Gulf of Mexico; and the trade through the Panama Canal, the North Atlantic is seen to be the world's busiest ocean. About one-half of the world's total tramp and liner tonnage is engaged in exchanging goods across these waters.

The Pacific is still a lightly traveled ocean as compared to the North Atlantic. The Pacific's total trans-ocean commerce is even surpassed by the trade across the Indian Ocean and that across the South Atlantic between South American and European ports.

Man has been busy tracing shipping routes across the oceans for thousands of years. They have been shifting lines. Over and over again well-established ocean highways have been abandoned or almost deserted because of political, economic, or engineering developments. First the Mediterranean, the Red Sea and the Persian Gulf were criss-crossed with trade lines. Then

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ANYONE MAY SECURE THESE TREASURES OF THE SNOW

The delicate tracery of many snow crystals is brought out in greater detail by photographing them outdoors on a glass slide, with light transmitted from below by means of a mirror. The middle crystal in the second row from the top was photographed in 1886 and was the first specimen of outstanding beauty to be secured. The middle crystal of the top row is a remarkable "spiderweb" form. The specimens on this page are magnified from 8 to 60 diameters.

came the lanes directly across the Arabian Sea from Arabia to India; and the routes slowly feeling their way outside the "Pillars of Hercules" and up the coast of Europe.

Changing Ship Routes

With the circumnavigation of Africa came a rapid growth of traffic south of the continent to India, and a falling off in Mediterranean shipping. Nearly four centuries later, when the Suez Canal was cut through, the traffic around Africa practically disappeared, and a huge new stream began to flow through the Mediterranean. Columbus created a shipping lane to the tropics of the New World. Spain's political losses made this route less and less important.

The steady economic development of the United States built into major importance the North Atlantic route to America's greatest port, and continued growth of the United States keeps it important. Expansion of wheat growing in the Canadian Northwest created another busy trade between the St. Lawrence and Europe. It is an engineering development again, the building of a railway to Hudson Bay and the construction of Port Churchill, that is responsible for the newest change in Atlantic trade routes and a shifting farther north of some of the St. Lawrence wheat stream.

Note: Northern Canada, once a wilderness but now being developed and opened to trade, is described in many recent articles in the *National Geographic Magazine*. For supplementary reading see: "On Mackenzie's Trail to the Polar Sea," August, 1931; "To-day on the Yukon Trail of 1898," July, 1930; "Quebec, City and Province," April, 1930; "Gentlemen Adventurers of the Air," November, 1929; and "Canada from the Air," October, 1926.

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SNOW KEEPS THIS ESKIMO MOTHER AND CHILD WARM

During the summer months steamers following the new Hudson Bay steamship route to Europe pass Wakeham Bay, on Hudson Strait, where this native winter home, or igloo, was cut from snow and ice. Igloos are smoky inside, but they are snug and secure from howling winds which sweep down from the Arctic. The doorway of this Eskimo home is so low one must crawl to enter it (See also Bulletin No. 4).